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DEVELOPING AN AIRWAY EQUIPMENT COMPATIBILITY RESOURCE TO AID IN THE ANTICIPATED AND UNANTICIPATED DIFFICULT AIRWAY

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Background

The difficult paediatric airway is rare; and when they do occur they are often predictable. Planning, preparation and practice are key to successful airway management¹. Planning and preparation requires knowledge of available equipment, equipment compatibility, and sizing appropriate to the patient.

Problem

When faced with the paediatric difficult airway cognitive load is high, and the advanced equipment to manage difficult airways may be infrequently utilised. Device compatibility can be forgotten. This is especially true in situations such as the emergency difficult airway, or out of hours.

Strategy for change

Our aim was two pronged – to develop a resource to act as a record of paediatric airway equipment availability, compatibility and suitability, and to educate staff and anaesthetic trainees who may be involved in caring for the paediatric difficult airway.

We called our resource the Paediatric Airway Equipment Quick Reference (PAEQR) chart. It listed the equipment available in our institution, and outlined the appropriate sizing based upon age or weight. Compatibility was demonstrated in two tables - the first outlining which endotracheal tubes (ETTs) which would allow passage of equipment (such as suction catheters and fibrescopes), and the second table demonstrating which supraglottic airways would allow passage of cuffed or non-cuffed ETTs.

To quality assure the PAEQR we presented it locally to the paediatric anaesthetist consultant body for review and endorsement.

The PAEQR is now present on all the airway equipment trolleys. It is part of our airway workshop which Stage 2 anaesthetic trainees complete as part of their paediatric module.

Measure of improvement

We aimed to measure improvement in airway operator knowledge and confidence through pre and post introduction surveys. A majority of respondents in our pre-survey were unconfident and unsure of airway equipment compatibility.

It has proven difficult to complete a post survey of airway operators who have successfully utilised the PAEQR due to the thankfully rare nature of the paediatric difficult airway. We aim to survey trainees who complete airway workshops in their confidence and knowledge of paediatric airway equipment selection and compatibility to further evaluate our work

Lessons learnt

Displaying device compatibility visually was a challenge. We initially aimed for all device compatibility to be in one table, however, it became complicated and unclear. External and internal diameter of equipment is crucial when discussing compatibility. Separating equipment compatibility out into “what fits down an ETT” and “what does an ETT fit down” made the tables clear and interpretable.

Message for others

We have shared our PAEQR with interested institutions, as it is a unique resource that can be adapted to provide a comprehensive list of equipment compatibility, easing cognitive load during preparation and planning for the paediatric difficult airway.

Reference

1. Crocker K, Black AE. Assessment and management of the predicted difficult airway in babies and children. *Anaesth Intensive Care Med* [Internet]. 2009;10(4):200–5. Available from: <http://dx.doi.org/10.1016/j.mpaic.2009.01.012>